WASTE MANAGEMENT

CLOSED SITE MANAGEMENT GROUP - MIDEAST
700-56th Avenue
Zeeland, MI 49464

September 11, 2017

Mr. John Bradley
Senior Geologist/Acting GDSMU Unit Chief
Remediation and Redevelopment Division,
Superfund Section
Michigan Department of Environmental Quality
Constitution Hall
525 West Allegan
Lansing, Michigan 48913

Mr. Rick Solle
Director of Public Services
Plainfield Township
6161 Belmont Avenue NE
Belmont, Michigan 49306

Subject: PFC Sampling – Groundwater and Residential Wells
State Disposal Landfill
Grand Rapids, Michigan

Dear Mr. Bradley/Mr. Solle:

During the week of April 24, 2017, Waste Management's consultant conducted the First Semiannual Groundwater sampling event at the State Disposal Landfill. Concurrent with that sampling event, samples were collected for PFC analysis per the April 20, 2017 Interim Groundwater Sampling Plan for Perflourinated Compounds (PFCs).

The sampling event results have been received from the laboratory and are attached for your information. Also attached is a cross sectional view of the area's hydrogeologic conditions and a map of the wells that have been sampled. The analytical data generated during this sampling event and the subsequent evaluation will be included in the site annual report in March 2018.

Review of data shows that the April 2017 PFC data is comparable to the October 2016 (Attachment A). Additional groundwater monitoring wells were sampled during the April 2017 event and this data is consistent with the earlier 2016 data. Specifically, the highest concentrations of PFCs, with the exception of the monitoring wells around the Versluis wellfield, were detected at the MW-3 and MW-7 well nests, located on the northern (downgradient) edge of the limits of fill. The PFC concentrations detected within the plume show a declining trend from the landfill to the Versluis Lake, similar to the decline in VOC concentrations tracked over the last several decades.

In coordination with Plainfield Township and the Michigan Health Department, groundwater samples were collected in July 2017 from three private residential wells for PFC analysis. Results showed only minor detections, just above the detection limit. The residential results are tabulated in Attachment D and have been provided to the Kent County Health Department.

Although State Disposal Landfill may potentially be a minor contributor of PFC's in groundwater, it's contribution to the Plainfield Township Wellfield is nominal when compared to the concentrations of PFC's that are in the Plainfield Township wells. With the recent news of PFC investigations in Rockford and Belmont, Waste Management has reviewed public information regarding the Wolverine Worldwide site in Rockford as well as the NE Gravel site directly across the Grand River. The former NE Gravel Company is documented to have taken in tannery waste and plating material from numerous local companies and disposed of it all in unlined trenches. This former landfill is directly north of the Versluis wellfield, on the north side of the Grand River. Initial PFC results currently show that while the Versluis wellfield is in use, groundwater may be pulled into the Plainfield Township wellfield from a higher concentration source via/under the Grand River from the North. All of this, indicates there is likely an alternative source across the Grand River from the Township's wellfield.

If you have any questions or wish to meet to discuss the data, please contact me at 616.822.3031 or at pmazor@wm.com.

Respectfully,

Phillip M. Mazor
District Manager
State Disposal Landfill
Waste Management of Michigan, Inc

cc: James Forney (WMMI)
Jennifer Overvoorde (BC)
Cathy Prein (Prein & Newhof)
Sara Simmonds (Kent County Health Department)
Christina Bush (DHHS)

Attachments (4)

- Attachment A: Comparison of October 2016 and April 2017 PFC Data With Part 201
- Attachment B: Monitoring Well Stiff Diagrams
- Attachment C: Figures
- Attachment D: Residential Well Data

"ATTACHMENT A"

TABLE 1
COMPARISON OF SITE WIDE PERFLUORINATED COMPOUND DATA WITH PART 201 CLEANUP CRITERIA
STATE DISPOSAL LANDFILL, PLAINFIELD TOWNSHIP, MICHIGAN

Analyte	Units	Residential Drinking Water	Non-Residential Drinking Water	GSI - Human Non-Drinking Water Values	Surface Water Human Drinking Water Values	MW-30S	MW-30S	MW-31	MW-31	MW-32	MW-32	PZ-2R	PZ-2R	MW-12	MW-12	MW-3S	MW-3S	MW-3D
						10/3/2016	4/24/2017	10/4/2016	4/24/2017	10/4/2016	4/24/2017	10/4/2016	4/25/2017	10/4/2016	4/25/2017	10/4/2016	4/25/2017	4/26/2017
						Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical
Perfluorobutanesulfonic acid (PFBS)	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	3.0	2.9	<2.0	<2.0	<2.0	<2.0	61	46	38
Perfluorohexanesulfonic acid (PFHxS)	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	76	100	98
Perfluoroheptanoic acid (PFHpA)	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	35	39	42
Perfluorooctanoic acid (PFOA)	ng/L	89	280	12,000	420	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	50	**130**	**120**
Perfluorooctanesulfonic acid (PFOS)	ng/L	80	660	12	11	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	**110**	**81**	**160**
Perfluorononanoic acid (PFNA)	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PFOA + PFOS TOTAL	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	**160**	**211**	**280**

Analyte	Units	Residential Drinking Water	Non-Residential Drinking Water	GSI - Human Non-Drinking Water Values	Surface Water Human Drinking Water Values	MW-7S	Dup-04 (MW-7S)	MW-7S	MW-7D	MW-7D	MW-13R	MW-13R	PT-1	PT-1	MW-14R	MW-14R	MW-15S	MW-15I	MW-15I	MW-15D
						10/4/2016	10/4/2016	4/25/2017	5/5/2017	7/18/2017	10/5/2016	4/27/2017	10/6/2016	4/27/2017	10/6/2016	4/26/2017	4/26/2017	10/6/2016	4/28/2017	4/28/2017
						Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical
Perfluorobutanesulfonic acid (PFBS)	ng/L	--	--	--	--	46	49	40	68	80	6.7	7.6	3.8	3.5	75	80	2.7	29	28	25
Perfluorohexanesulfonic acid (PFHxS)	ng/L	--	--	--	--	120	120	85	290	240	2.2	2.2	6.3	6.7	27	33	<2.0	37	30	11
Perfluoroheptanoic acid (PFHpA)	ng/L	--	--	--	--	38	38	52	73	86	<2.0	<2.0	3.4	4.5	39	53	<2.0	25	28	19
Perfluorooctanoic acid (PFOA)	ng/L	89	280	12,000	420	**210**	**200**	**94**	**420**	**390**	<2.0	<2.0	9.0	13	22	44	<2.0	30	35	13
Perfluorooctanesulfonic acid (PFOS)	ng/L	80	660	12	11	**190**	**190**	**160**	**530**	**340**	<2.0	<2.0	<2.0	<2.2	<2.0	<2.0	<2.0	2.4	2.5	4.0
Perfluorononanoic acid (PFNA)	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PFOA + PFOS TOTAL	ng/L	--	--	--	--	**400**	**390**	**254**	**950**	**730**	<2.0	<2.0	9.0	13	22	44	<2.0	32.4	37.5	17.0

Analyte	Units	Residential Drinking Water	Non-Residential Drinking Water	GSI - Human Non-Drinking Water Values	Surface Water Human Drinking Water Values	MW-18AR	MW-18AR	MW-19R	MW-19R	PT-7R	PT-7R	Dup-03 (PT-7R)	MW-20R	MW-20R	MW-28S	MW-28S	MW-28D	MW-28D
						10/5/2016	4/27/2017	10/5/2016	4/27/2017	10/5/2016	4/27/2017	4/27/2017	10/5/2016	4/27/2017	10/5/2016	4/27/2017	10/5/2016	4/27/2017
						Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical
Perfluorobutanesulfonic acid (PFBS)	ng/L	--	--	--	--	3.9	3.8	35	34	33	38	38	23	20	<2.0	<2.0	<2.0	<2.0
Perfluorohexanesulfonic acid (PFHxS)	ng/L	--	--	--	--	2.7	<2.0	60	61	35	43	43	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluoroheptanoic acid (PFHpA)	ng/L	--	--	--	--	<2.0	<2.0	35	42	24	37	37	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctanoic acid (PFOA)	ng/L	89	280	12,000	420	<2.0	<2.0	50	70	27	47	47	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctanesulfonic acid (PFOS)	ng/L	80	660	12	11	<2.0	<2.0	4.6	6.4	7.2	15	15	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorononanoic acid (PFNA)	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PFOA + PFOS TOTAL	ng/L	--	--	--	--	<2.0	<2.0	54.6	76.4	34.2	62	62	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Analyte	Units	Residential Drinking Water	Non-Residential Drinking Water	GSI - Human Non-Drinking Water Values	Surface Water Human Drinking Water Values	MW-22S	MW-22S	Dup-02 (MW-22S)	MW-22DR	Dup-03 (MW-22DR)	MW-22DR	MW-23DR	MW-23DR
						10/3/2016	4/25/2017	4/25/2017	10/3/2016	10/3/2016	4/25/2017	10/3/2016	4/25/2017
						Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical
Perfluorobutanesulfonic acid (PFBS)	ng/L	--	--	--	--	110	110	110	120	120	98	110	95
Perfluorohexanesulfonic acid (PFHxS)	ng/L	--	--	--	--	260	280	340	330	320	290	200	190
Perfluoroheptanoic acid (PFHpA)	ng/L	--	--	--	--	42	52	55	58	55	56	35	41
Perfluorooctanoic acid (PFOA)	ng/L	89	280	12,000	420	**190**	**370**	**400**	**250**	**250**	**380**	**160**	**250**
Perfluorooctanesulfonic acid (PFOS)	ng/L	80	660	12	11	**500**	**570**	**680**	**300**	**300**	**350**	**690**	**1100**
Perfluorononanoic acid (PFNA)	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PFOA + PFOS TOTAL	ng/L	--	--	--	--	**690**	**940**	**1080**	**550**	**550**	**730**	**850**	**1350**

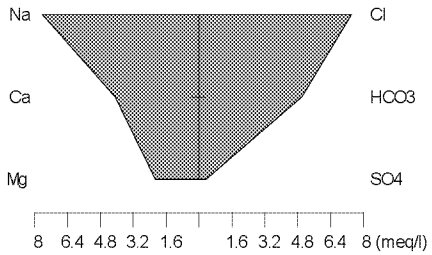
Analyte	Units	Residential Drinking Water	Non-Residential Drinking Water	GSI - Human Non-Drinking Water Values	Surface Water Human Drinking Water Values	PW-3	PW-3	Dup-01 (PW-3)	PW-4	PW-4	PW-5	Dup-02 (PW-5)	PW-5	SW-VL-1	SW-GR-1	Dup-01 (SW-GR-1)	SW-GR-2	SW-GR-3
						10/3/2016	4/25/2017	4/25/2017	10/3/2016	4/25/2017	10/3/2016	10/3/2016	4/25/2017	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016
						Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical
Perfluorobutanesulfonic acid (PFBS)	ng/L	--	--	--	--	72	73	71	110	100	130	130	130	10	<2.0	<2.0	<2.0	<2.0
Perfluorohexanesulfonic acid (PFHxS)	ng/L	--	--	--	--	130	140	130	150	130	190	190	190	7.5	<2.0	<2.0	<2.0	<2.0
Perfluoroheptanoic acid (PFHpA)	ng/L	--	--	--	--	23	29	28	21	23	26	25	30	4.7	<2.0	<2.0	<2.0	<2.0
Perfluorooctanoic acid (PFOA)	ng/L	89	280	12,000	420	**110**	**180**	**170**	**93**	**160**	**110**	**120**	**200**	6.3	<2.0	<2.0	<2.0	<2.0
Perfluorooctanesulfonic acid (PFOS)	ng/L	80	660	12	11	**490**	**720**	**730**	**200**	**310**	**330**	**310**	**440**	3.5	<2.0	<2.0	<2.0	<2.0
Perfluorononanoic acid (PFNA)	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PFOA + PFOS TOTAL	ng/L	--	--	--	--	**600**	**900**	**900**	**293**	**470**	**440**	**430**	**640**	9.8	<2.0	<2.0	<2.0	<2.0

Notes:
ng/L = nanograms per liter
-- No Part 201 criteria established

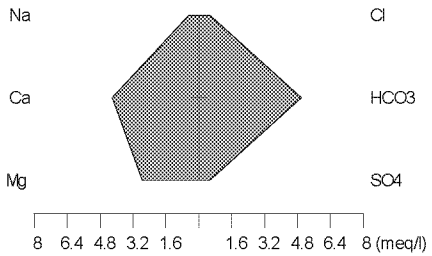
1. The results for all the monitoring wells were compared with the proposed Part 201 Residential and Non-Residential Drinking Water Criteria

"ATTACHMENT B"

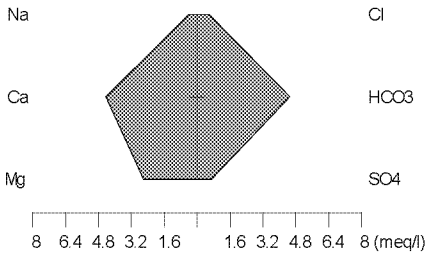
MW-30S, 4/24/2017



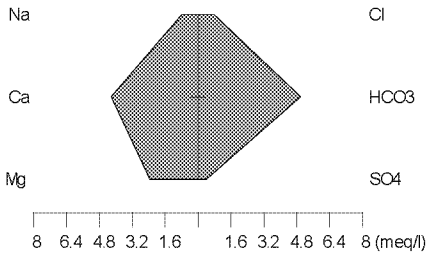
MW-31, 4/24/2017



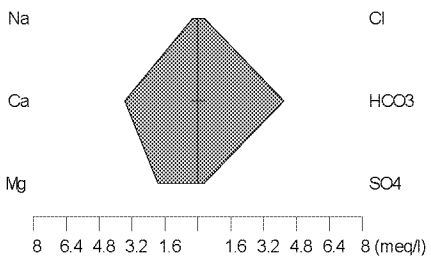
MW-32, 4/24/2017



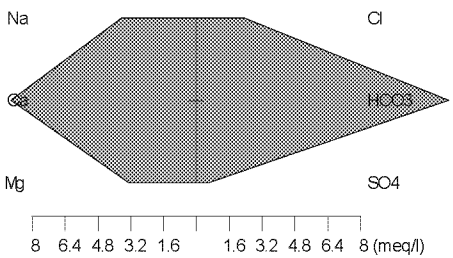
PZ-2R, 4/25/2017



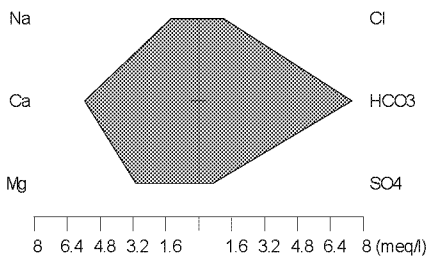
MW-12, 4/25/2017



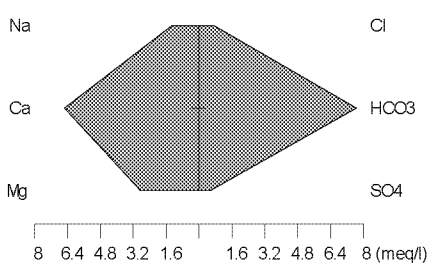
MW-3S, 4/25/2017



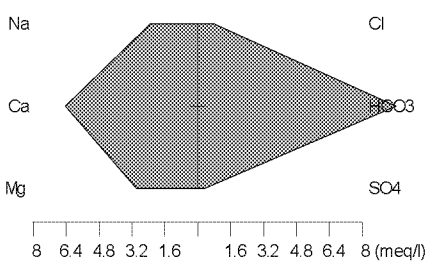
MW-3D, 4/26/2017



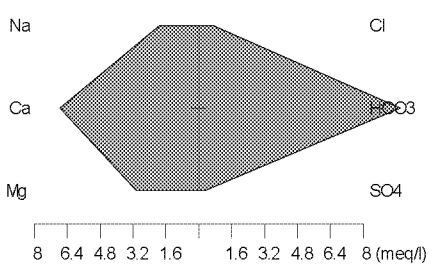
MW-7S, 4/25/2017



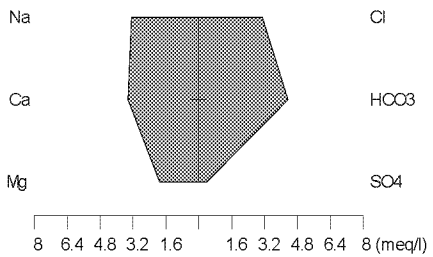
MW-7D, 5/5/2017



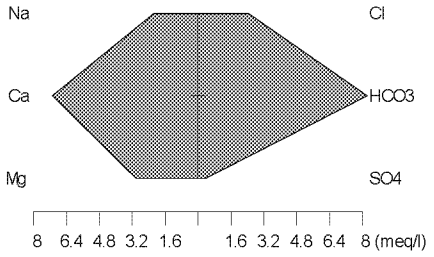
MW-7D-RS, 7/18/2017



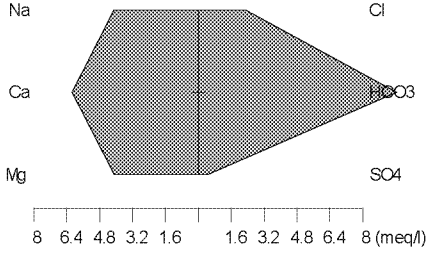
MW-13R, 4/27/2017



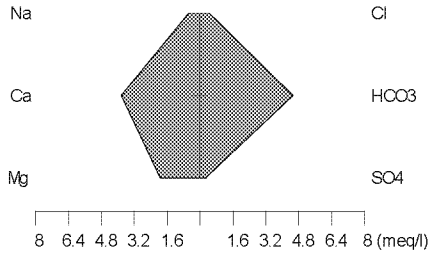
PT-1, 4/27/2017



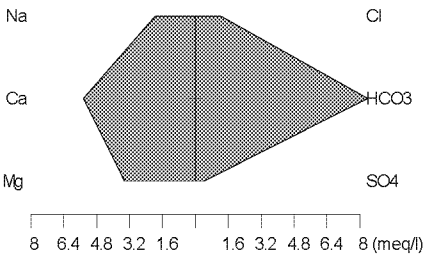
MW-14R, 4/26/2017



MW-15S, 4/26/2017



MW-15I, 4/28/2017



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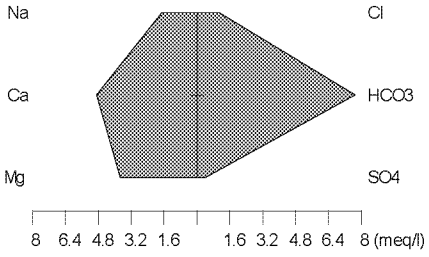
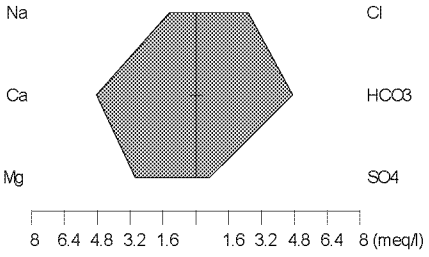
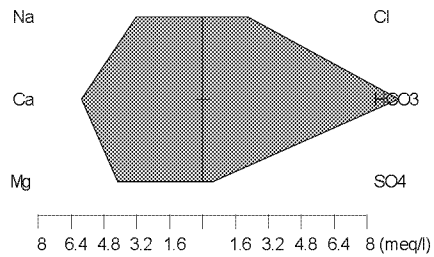


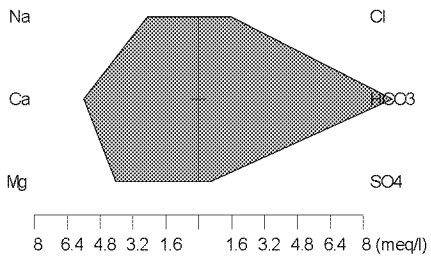
MW-18AR, 4/27/2017



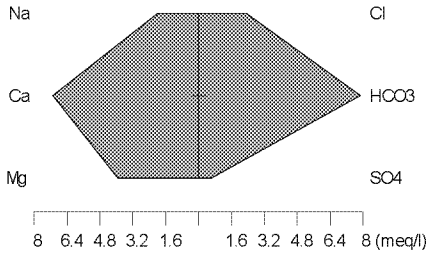
MW-19R, 4/27/2017



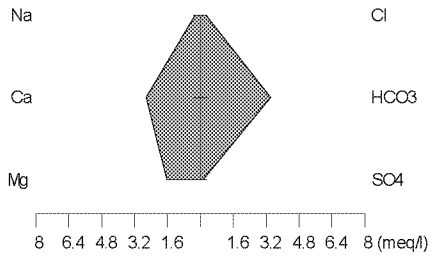
PT-7R, 4/27/2017



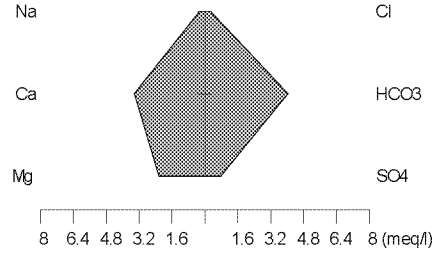
MW-20R, 4/27/2017



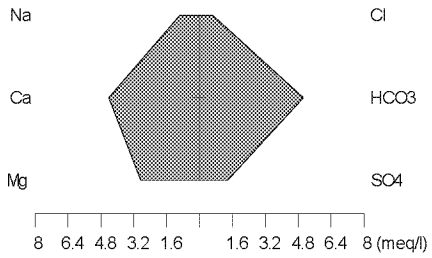
MW-28S, 4/27/2017



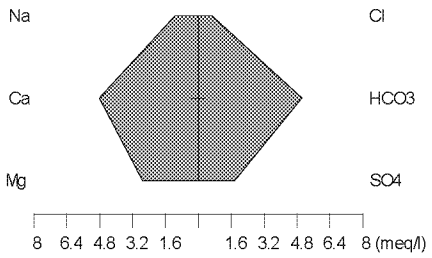
MW-28D, 4/27/2017



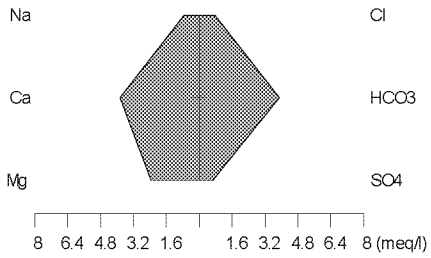
MW-22S, 4/25/2017



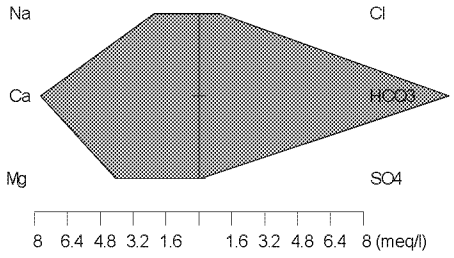
MW-22DR, 4/25/2017



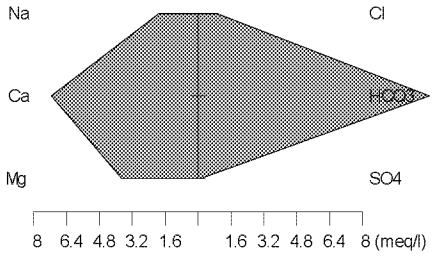
MW-23DR, 4/25/2017



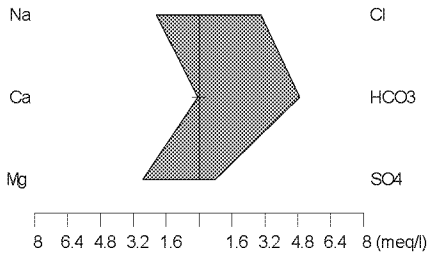
SP-01, 1/26/2017



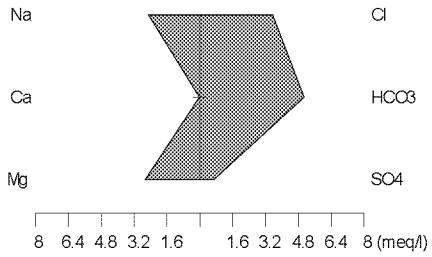
SP-01, 5/5/2017



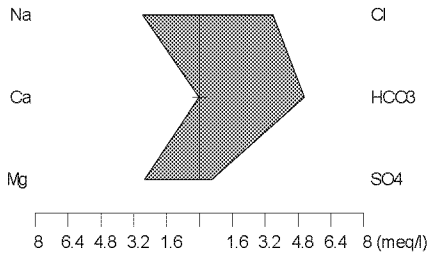
4564 E. Beltline, 7/18/2017



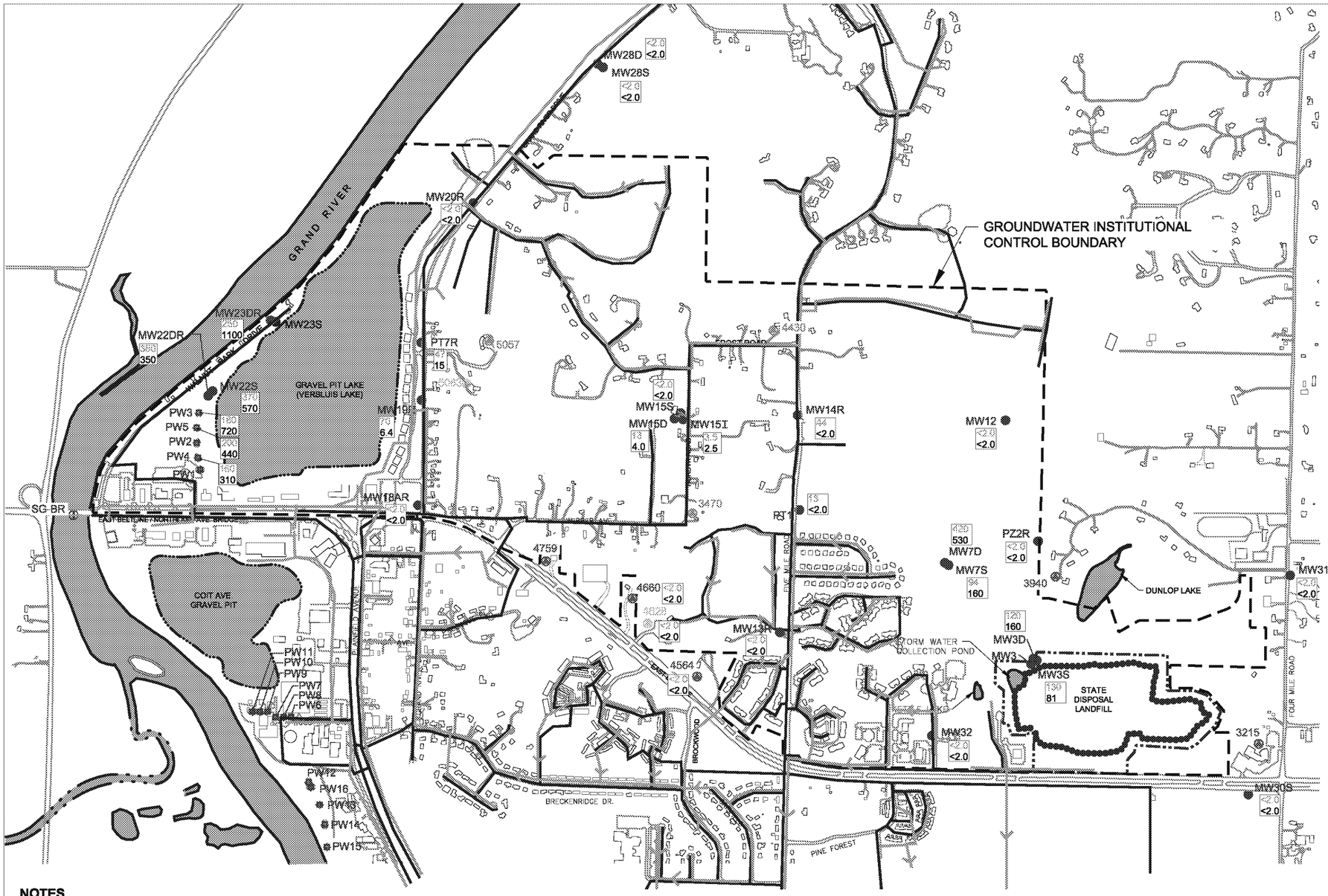
4628 E. Beltline, 7/18/2017



4660 E. Beltline, 7/18/2017



"ATTACHMENT C"



LEGEND

- APPROXIMATE WASTE MANAGEMENT OF MICHIGAN, INC., PROPERTY LINE
- GROUNDWATER INSTITUTIONAL CONTROL BOUNDARY
- FOOTPRINT OF THE POST-COVER CONSTRUCTION STATE DISPOSAL LANDFILL
- MW12 — SAMPLED WATER TABLE WELL OR PIEZOMETER
- MW12 — WATER TABLE WELL OR PIEZOMETER MONITORED FOR WATER LEVELS ONLY
- SG-BR — LOCATION ON BRIDGE WALKWAY USED FOR MEASURING RIVER STAGE
- PLAINFIELD TOWNSHIP WATER SUPPLY WELL
- 5057 — PRIVATE WELL WITHIN THE GROUNDWATER INSTITUTIONAL CONTROL BOUNDARY (CURRENT AS OF JULY 2016). (SEE NOTE 4)
- 5057 — RECENTLY CONFIRMED ABANDONED PRIVATE WELL (SEE NOTE 4)
- 3940 — PRIVATE WELL OUTSIDE THE GROUNDWATER INSTITUTIONAL CONTROL BOUNDARY (CURRENT AS OF OCT 2016). (SEE NOTE 4)
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER WITH FLOW DIRECTION
- <2.0 — PERFLUOROOCTANOIC ACID (PFOA) RESULT IN PPT (APRIL 2017)
- <2.0 — PERFLUOROOCTANESULFONIC ACID (PFOS) RESULT IN PPT (APRIL 2017)

WELL DESIGNATION KEY

MW1	WASTE MANAGEMENT OF MICHIGAN MONITORING WELL
PZ1	WASTE MANAGEMENT OF MICHIGAN MONITORING WELL (ORIGINALLY INSTALLED BY THE MDEQ)
PT1	PLAINFIELD TOWNSHIP MONITORING WELL
PW	PLAINFIELD TOWNSHIP WATER SUPPLY WELL

0 1200' 2400'

SCALE IN FEET

NOTES

1. ONLY THOSE MONITORING WELLS THAT ARE INCLUDED IN THE POST-CLOSURE GROUNDWATER MONITORING PROGRAM ARE SHOWN ON THIS FIGURE.
2. BASE MAP DEVELOPED FROM AERIAL PHOTOGRAPH TAKEN IN APRIL 2003, AS PROVIDED BY REGIS.
3. ON JULY 19, 2016 WASTE MANAGEMENT MET WITH THE KENT COUNTY HEALTH DEPARTMENT (KCHD) WHO CONFIRMED NO NEW WELLS HAVE BEEN INSTALLED WITHIN THE GROUNDWATER INSTITUTIONAL CONTROL BOUNDARY SINCE THE JANUARY 2000 WELL SURVEY.
4. 3612 HORDYK ST AND 4430 FROST RD: CONFIRMED TO BE ABANDONED BY FIELD VERIFICATION ON AUG 5, 2016 AND CONFIRMED TO HAVE WATER METERS BY THE PLAINFIELD TOWNSHIP WATER DEPT (PTWD) ON MARCH 6, 2017. 5057 GRAND RIVER DR: CONFIRMED TO BE ABANDONED IN 2006. CONFIRMED TO HAVE A WATER METER BY PTWD ON MARCH 6, 2017. 5063 GRAND RIVER DR: CONFIRMED TO BE USED FOR IRRIGATION PURPOSES ONLY IN 2006. UPDATED WELL USE INFORMATION WAS NOT ABLE TO BE OBTAINED IN AUG 2016 OR MARCH 2017. CONFIRMED TO HAVE A WATER METER BY PTWD ON MARCH 6, 2017. 4759 E. BELTLINE: CONFIRMED TO EXIST BY PTWD ON MARCH 6, 2017. PARCEL IS OUTSIDE THE GROUNDWATER INSTITUTIONAL CONTROL BOUNDARY (GWICB) BECAUSE NO IMPACT BY THE LANDFILL FOUND IN NEARBY MONITORING WELL MW-18AR OR FORMER MONITORING WELLS WEST OF THE E. BELTLINE. 4660 E. BELTLINE: CONFIRMED TO EXIST BY PTWD ON MARCH 6, 2017. MONITORED BY THE KENT COUNTY HEALTH DEPT (KCHD) DUE TO A LUST ON THE NEIGHBORING PROPERTY. HISTORICAL SAMPLING BY WM SHOWED NO LANDFILL IMPACT. 4628 E. BELTLINE: CONFIRMED TO EXIST BY PTWD ON MARCH 6, 2017. MONITORED BY THE KENT COUNTY HEALTH DEPT (KCHD) DUE TO AN ON-SITE LUST. HISTORICAL SAMPLING BY WM SHOWED NO LANDFILL IMPACT. DUE TO THE LARGE SIZE OF THE PARCEL (E. BELTLINE TO WEBBER AVE), IT REMAINS INSIDE THE GWICB (I.E., EASTERN EDGE OF PARCEL CLOSE TO LANDFILL IMPACTED AREA). 4564 E. BELTLINE: CONFIRMED TO EXIST BY PTWD ON MARCH 6, 2017. PARCEL IS OUTSIDE THE GWICB BECAUSE NO IMPACT BY THE LANDFILL FOUND IN NEARBY MONITORING WELL MW-13R OR FORMER MONITORING WELLS WEST OF THE E. BELTLINE. 3940 DUNLOP LAKE LN: CONFIRMED TO EXIST IN AUG 2016 AND CONFIRMED TO BE OUTSIDE THE GWICB WHEN THE AREA'S PARCEL LINES WERE UPDATED IN NOV 2016. 3215 4 MILE: CONFIRMED TO EXIST IN AUG 2016, HOWEVER IS UPGRADIENT OF THE LANDFILL AND THEREFORE IS OUTSIDE OF THE GWICB.

Brown AND Caldwell

SCALE: 1" = 1200'

148916.006

DATE: MARCH 2017

STATE DISPOSAL LANDFILL
SITEWIDE PFOA AND PFOS CONCENTRATIONS
PLAINFIELD TOWNSHIP, MICHIGAN

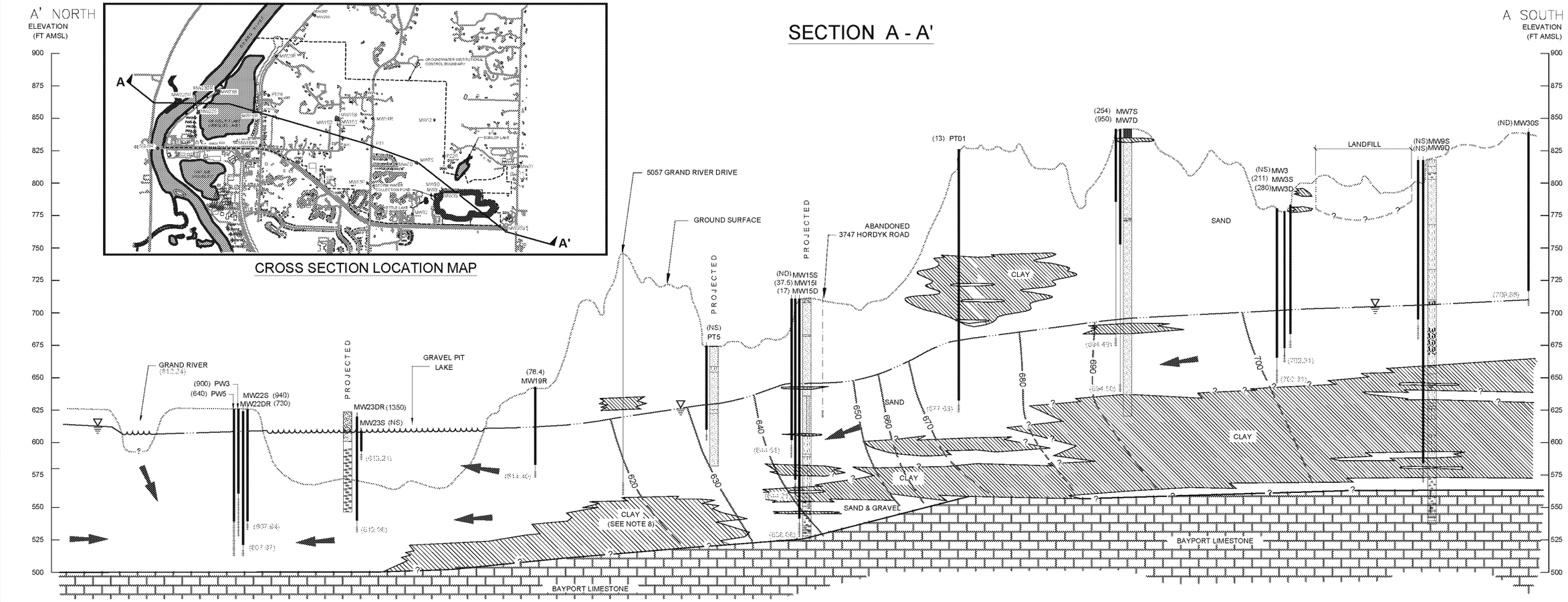
FIGURE

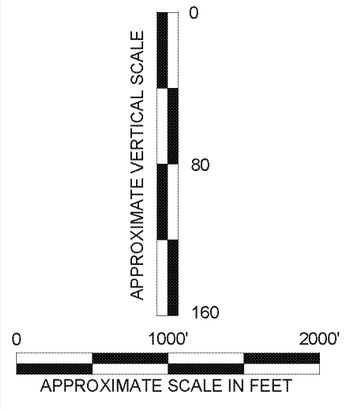
1

Path: O:\WasteManagement\State Disposal LF\CAD-ES\Figures\Spring 2017 File Name: FIG-1_PFOA_PFOS Plot Date: September 8, 2017 11:52 AM Cadd User: Andrew Hutt

SECTION A - A'

CROSS SECTION LOCATION MAP





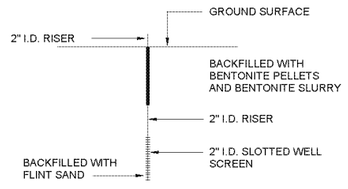
VERTICAL EXAGGERATION: 12.5X

NOTES

1. FIGURE ADAPTED FROM ORIGINAL CROSS SECTION FROM MONTGOMERY WATSON (1996).
2. THE STRATUM LINES ARE BASED ON INTERPOLATION BETWEEN BORINGS AND MAY NOT REPRESENT ACTUAL SUBSURFACE CONDITIONS. QUESTION MARKS AT THE CONTACTS BETWEEN SUBSOIL TYPES INDICATE THE CONTACTS ARE INFERRED.
3. AMSL INDICATES ABOVE MEAN SEA LEVEL.
4. HORIZONTAL DISTANCES ARE MEASURED WITH RESPECT TO THE CENTER OF EACH SOIL BORING LOCATION.
5. ELEVATIONS OF LAND SURFACES ARE APPROXIMATE AND ARE BASED ON TOPOGRAPHIC MAP PROVIDED BY WASTE MANAGEMENT OF NORTH AMERICA, DATED APRIL 27, 1990.
6. GROUNDWATER ELEVATIONS ARE BASED ON MEASUREMENTS OBTAINED BY BROWN AND CALDWELL ON APRIL 24 & 25(MW-22S, -22DR, -23DR), 2017.
7. POTENTIOMETRIC CONTOUR INTERVAL IS 10 FEET. THE POTENTIOMETRIC LINE IS DASHED WHERE INFERRED.
8. THE BORINGS AND MONITORING WELLS AT MW15(S/I/D), PT5 AND MW23 (S/DR) ARE PROJECTED FROM ANOTHER LOCATION ALONG THE GRAVEL PIT LAKE SHORELINE.
9. CONCENTRATIONS SHOWN ARE THE SUM OF DETECTABLE PERFLUOROOCTANIC ACID(PFOA) AND PERFLUOROOCTANE SULFONIC ACID(PFOS) IN GROUNDWATER SAMPLES ANALYZED USING EPA METHOD 537.
10. ND = NOT DETECTED.
11. NS = NOT SAMPLED.

LEGEND

- WATER TABLE
- (702.18) WATER LEVEL ELEVATIONS (FT AMSL)
- (8.7) TOTAL PFOA & PFOS CONCENTRATION (mg/L)
- 690 POTENTIOMETRIC CONTOUR (FT AMSL)
- GROUNDWATER FLOW DIRECTION
- LEAN CLAY
- SANDY LEAN CLAY
- SILTY CLAY
- WELL-GRADED / POORLY-GRADED SAND
- WELL-GRADED / POORLY-GRADED SAND, WITH GRAVEL
- SILTY SAND
- LIMESTONE
- CLAYEY SAND
- SILT
- SANDY SILT
- GRAVELLY SILT
- WELL-GRADED / POORLY-GRADED GRAVEL
- WELL-GRADED / POORLY-GRADED GRAVEL WITH SAND
- SILTY GRAVEL



TYPICAL WELL INSTALLATION DETAIL

Brown AND Caldwell

SCALE: AS NOTED
148916.106
DATE: SEPT. 2017

STATE DISPOSAL LANDFILL
GROUNDWATER EQUIPOTENTIAL AND TOTAL PFOA & PFOS CONCENTRATIONS IN CROSS SECTION
SPRING 2017

FIGURE
2

"ATTACHMENT D"

TABLE 2
COMPARISON OF JULY 2017 PERFLUORINATED COMPOUND DATA WITH PART 201 CLEANUP CRITERIA
STATE DISPOSAL LANDFILL, PLAINFIELD TOWNSHIP, MICHIGAN

Analyte	Units	Residential Drinking Water	Non-Residential Drinking Water	GSI - Human Non-Drinking Water Values	Surface Water Human Drinking Water Values	4660 E. Beltline	4628 E. Beltline	4564 E. Beltline	Dup-01 (4628 E. Beltline)	Trip Blank
						7/18/2017	7/18/2017	7/18/2017	7/18/2017	7/18/2017
						Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical	Eaton Analytical
Perfluorobutanesulfonic acid (PFBS)	ng/L	--	--	--	--	4.0	3.7	4.1	4.0	<2.0
Perfluorohexanesulfonic acid (PFHxS)	ng/L	--	--	--	--	2.1	<2.0	<2.0	<2.0	<2.0
Perfluoroheptanoic acid (PFHpA)	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctanoic acid (PFOA)	ng/L	89	280	12,000	420	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctanesulfonic acid (PFOS)	ng/L	80	660	12	11	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorononanoic acid (PFNA)	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0
PFOA + PFOS TOTAL	ng/L	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0

Notes:
ng/L = nanograms per liter
-- No Part 201 criteria established

1. The results for all the monitoring wells were compared with the proposed Part 201 Residential and Non-Residential Drinking Water Criteria.